

**Extended Range Infrared Communication (ERIC) For
An Infrared Data Association (IrDA) Compliant Portable Device**

Abstract Of The Disclosure

An Infrared Data Association (IrDA) communication range (109) (e.g., 1 meter) of an IrDA compliant portable device (201) is increased to an extended range infrared communication (ERIC) range (209) (e.g., 2 to 40 meters) by extending a transmission range over an uplink channel (207) from the portable device (201) up to a base station (202) and by extending a transmission range over the downlink channel (208) from the base station (202) down to the portable device (201). The extension of the transmission range over the uplink channel (207) is accomplished in part by modifying the IrDA compliant portable device (201) by adding ERIC software (911), including a software switch (913), to the IrDA compliant portable device (201), while reusing the same hardware (901, 902, 903, 904, 905, 906, 907 and 908) in the IrDA compliant portable device (201). The ERIC software (911) narrows a bandwidth of an infrared (IR) transmit signal (215) over the uplink channel (207) from an IrDA compliant bandwidth (e.g., at least 115.2 KHz) to an ERIC bandwidth (e.g., 20 KHz). The ERIC bandwidth is created by lowering the data rate of the IR transmit signal (215) from an IrDA data rate (e.g., 115.2 kbps) to an ERIC data rate (e.g., 10 kbps), and by changing the signal modulation method for transmitting the IR transmit signal (215) from an IrDA signal modulation method (e.g. pulse modulation) to an ERIC signal modulation method (e.g., amplitude modulation). The extension of the transmission range over the uplink channel (207) is accomplished further in part by using a receiver (212) in the base station (202) designed to receive the IR transmit signal (215), having the ERIC data rate and the ERIC modulation method, over the uplink channel (207). The receiver (212) maximizes its sensitivity by detecting the IR transmit signal (215) with a sensitive photodiode detector (1905) and by receiving the IR transmit signal with a narrowband ERIC receiver circuit (1906). The IR communication range of an IR transmit signal (216) is extended over the downlink channel (208) by the base station (202) transmitting the IR transmit signal (216), having the IrDA data rate (e.g., 115.2 kbps) and the IrDA signal modulation method (e.g. pulse modulation), over the downlink channel (208) at a higher power level than an IrDA power level required to meet the IrDA communication range (109) (e.g., 1 meter). The portable device (201) and the base station (202) operate in either an IrDA communication mode over the IrDA range (109) or an ERIC communication mode over the ERIC range (209).